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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/520,310 | 01/05/2005 | Martinus Bernardus Van Der Mark | NL 020666 | 2500 |
| 24737 | 7590 | 12/07/2007 | | |
| PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510 | | | EXAMINER HEYI, HENOK G | |
| | | | ART UNIT 2627 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/520,310

Applicant(s)

VAN DER MARK ET AL.

Examiner

Henok G. Heyi

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2005 is/are: a) ☒ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the *free working distance* d_F must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 7 and 11 are objected to under 37 CFR 1.75(c) as being in improper form because multiple dependent claim can not depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 7 and 11 not been further treated on the merits.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 1-4, 6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Novotny et al 6,069,853 (Novotny hereinafter) in view of Higuchi et al 5,311,500 (Higuchi hereinafter).**

Regarding claim 1, Novotny teaches an optical recording and reading system (see Fig. 1) for use with an optical data storage medium (150), said system comprising: the medium (150) having a recording stack (152), formed on a substrate (160), said

recording stack suitable for recording by means of a focused radiation beam (see Fig. 1) with a wavelength λ in air (a beam at a specified wavelength, col 3 line 17), and an optical head (140), with an objective (142) having a numerical aperture NA (The near-field lens 144 is preferably made of a high-index optical material to produce a large effective numerical aperture ("NA"), col 3 lines 39-41) and from which objective (142) the focused radiation beam emanates during recording, the objective (142) arranged on the recording stack (152) side of said optical data storage medium (150) but fails to teach explicitly about the recording stack having a first optical surface (6) most remote from the substrate (8); and having a second optical surface (7) closest to the recording stack (9), and adapted for recording/reading at a free working distance d_F of smaller than $50\mu\text{m}$ from the first optical surface (6), characterized in that at least one of the first optical surface (6) and the second optical surface (7) is provided with a transparent hydrophobic layer (10) that has a refractive index n and has a thickness smaller than $0.5\lambda/n$. However, Higuchi teaches the moisture barrier layer 5 is provided to prevent the substrate 1 from absorbing moisture. Specifically, when the substrate 1 expands with absorbing moisture, a stress imbalance arises between the substrate 1 and a plurality of the layers 2, 3 and 4 provided on the substrate 1 (col 3 lines 28-33). Higuchi also teaches that the layer thickness is dependent on the refractive index n and the wavelength λ (col 4 lines 35-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording and reading system of Novotny to include a data storage medium that has hydrophobic (moisture barrier) layers with thickness that

depend on the wavelength and refractive index. The modification would have been obvious because of the benefit of avoiding contamination of lens due to moisture and other contaminants.

Regarding claim 2, Higuchi teaches a system according to claim 1, wherein the second optical surface (3) is provided with a hydrophobic layer (5) that has a thickness substantially equal to $0.25 \lambda / n$ (col 4 lines 35-47).

Regarding claim 3, Higuchi teaches a system according to claim 1, wherein the second optical surface (3) is provided with a hydrophylic layer (5, see col 3 lines 25-30) that has a thickness substantially equal to $0.25 \lambda / n$ (col 4 lines 35-47).

Regarding claim 4, Novotny teaches a system according to claim 1, wherein the optical head (140, Fig. 5A) further comprises a magnetic coil (604, Fig. 6A) arranged at a side of the optical head (140) closest to the recording stack (152, Fig. 1) such that an optical axis of the optical head (140) traverses the center of the magnetic coil (604) and the recording stack (152) of the optical data storage medium (150) is of the magneto-optical type.

Regarding claim 6, Higuchi teaches a system according to any one of claims 1-5, wherein the hydrophobic layer (moisture barrier, col 3 lines 28-33) comprises a material selected from the group of poly-para-xylylenes, fluorocarbons and copolymers thereof (col 3, lines 24-60).

Regarding claim 8, Novotny teaches an optical data storage medium (150, Fig. 1) having a recording stack (152), formed on a substrate (160), said recording stack suitable for recording by means of a focused radiation beam (see Fig. 1), with a

wavelength λ in air (a beam at a specified wavelength, col 3 line 17), but fails to teach explicitly about the recording stack having a first optical surface most remote from the substrate, characterized in that the first optical surface (6) is provided with a transparent hydrophobic layer (10) that has a refractive index n and has a thickness smaller than $0.5 \lambda / n$. However, Higuchi teaches the moisture barrier layer 5 is provided to prevent the substrate 1 from absorbing moisture. Specifically, when the substrate 1 expands with absorbing moisture, a stress imbalance arises between the substrate 1 and a plurality of the layers 2, 3 and 4 provided on the substrate 1 (col 3 lines 28-33). Higuchi also teaches that the layer thickness is dependent on the refractive index n and the wavelength λ (col 4 lines 35-47).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording and reading system of Novotny to include a data storage medium that has hydrophobic (moisture barrier) layers with thickness that depend on the wavelength and refractive index. The modification would have been obvious because of the benefit of avoiding contamination of lens due to moisture and other contaminants.

Regarding claim 9, Higuchi teaches an optical data storage medium according to claim 8, wherein the first optical surface is provided with a hydrophobic layer (5) that has a thickness smaller than $0.25 \lambda / n$ (col 4 lines 35-47).

Regarding claim 10, an optical data storage medium (5) according to claim 8 or 9, wherein the hydrophobic layer comprises a material selected from the group of poly-para-xylenes, fluorocarbons and copolymers thereof (col 3, lines 24-60).

6. **Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Novotny in view of Higuchi as applied to claim 4 above, and further in view of Davis et al. 6,058,094 (Davis hereinafter).**

Regarding claim 5, Novotny teaches a system according to claim 4, with a magnetic coil (604, Fig. 6A) but both Novotny and Higuchi fail to teach the size of the inner diameter of the magnetic coil is smaller than 60 μm . However, Davis teaches that the inner diameter along the major axis of the magnetic coil 460 on a lower surface comprises approximately 46 microns and along the minor axis approximately 40 microns. (Col 10 lines 31-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the magnetic coil of Novotny to have a diameter smaller than 60 μm as taught by Davis. The modification would have been obvious because of the benefit of strong magnetic field.

Conclusion

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).


Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henok G. Heyi whose telephone number is (571) 270-1816. The examiner can normally be reached on Monday to Friday 8:30 to 6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HGH
Patent Examiner
11/29/2007


TAN DINH
PRIMARY EXAMINER
12/06/07